

WHAT IS CLAIMED IS:

1. An anomaly diagnosis system provided in a vehicle having an engine of internal-combustion and a component relating to the engine, the anomaly diagnosis system comprising:

warming-up means for executing warming-up of at least one of the engine and the component;

pre-start state detecting means for detecting a pre-start state by detecting a preparation operation aimed for a start of the engine, wherein the warming-up means beforehand executes the warming-up prior to the start of the engine when the pre-start state detecting means detects the pre-start state; and

anomaly detecting means for detecting an anomaly of the pre-start state detecting means.

2. The anomaly diagnosis system of Claim 1, further comprising:

vehicle state detecting means for detecting a vehicle state,

wherein the pre-start state detecting means detects the pre-start state based on a given signal, and

wherein the anomaly detecting means detects the anomaly of the pre-start state detecting means based on the given signal and the vehicle state detected by the vehicle state detecting means.

3. The anomaly diagnosis system of Claim 2,  
wherein the pre-start state detecting means detects the  
pre-start state based on an ON-signal or an OFF-signal of a  
driver seat switch as the given signal, wherein the ON-signal or  
OFF-signal of the drive seat switch indicates whether a driver  
is seated on a driver seat or not, respectively.

4. The anomaly diagnosis system of Claim 3,  
wherein, when the ON-signal of the driver seat switch is  
not detected and at least one of eight conditions included in  
the vehicle state detected by the vehicle state detecting means  
is effected, the anomaly detecting means detects the anomaly of  
the pre-start state detecting means, wherein:

a first condition of the eight conditions is that a  
vehicle speed is equal to a first speed or above;

a second condition of the eight conditions is that an  
engine rotation speed is equal to a second speed or above;

a third condition of the eight conditions is that an  
amount of air that is sucked to the engine is equal to a third  
amount or above;

a fourth condition of the eight conditions is that a  
pressure detected by a suction pressure sensor provided in an  
exhaust path is equal to a fourth pressure or above;

a fifth condition of the eight conditions is that an  
opening degree of an accelerator is equal to a fifth degree or  
above;

a sixth condition of the eight conditions is that an

opening degree of a throttle is equal to a sixth degree or above;

a seventh condition of the eight conditions is that an amount of stepping of a brake pedal is equal to a seventh amount or above; and

an eighth condition of the eight conditions is that an amount of stepping of a clutch pedal is equal to an eighth amount or above.

5. The anomaly diagnosis system of Claim 3,  
wherein, when the ON-signal of the driver seat switch is not detected and it is detected that the driver retires from the vehicle, the anomaly detecting means detects the anomaly of the pre-start state detecting means.

6. The anomaly diagnosis system of Claim 2,  
wherein the pre-start state detecting means detects the pre-start state based on an ON-signal or an OFF-signal of an ignition key insertion switch of an ignition key as the given signal, wherein the ON-signal or OFF-signal of the ignition key insertion switch indicates whether an ignition key is being inserted or not, respectively.

7. The anomaly diagnosis system of Claim 6,  
wherein, when the ON-signal of the ignition key insertion switch is not detected and at least one of ten conditions included in the vehicle state detected by the vehicle

state detecting means is effected, the anomaly detecting means detects the anomaly of the pre-start state detecting means, wherein:

a first condition of the ten conditions is that a vehicle speed is equal to a first speed or above;

a second condition of the ten conditions is that an engine rotation speed is equal to a second speed or above;

a third condition of the ten conditions is that an amount of air that is sucked to the engine is equal to a third amount or above;

a fourth condition of the ten conditions is that a pressure detected by a suction pressure sensor provided in an exhaust path is equal to a fourth pressure or above;

a fifth condition of the ten conditions is that an opening degree of an accelerator is equal to a fifth degree or above;

a sixth condition of the ten conditions is that an opening degree of a throttle is equal to a sixth degree or above;

a seventh condition of the ten conditions is that an amount of stepping of a brake pedal is equal to a seventh amount or above;

an eighth condition of the ten conditions is that an amount of stepping of a clutch pedal is equal to an eighth amount or above;

a ninth condition of the ten conditions is that the ignition key is positioned at an ON position; and

a tenth condition of the ten conditions is that the ignition key is positioned at a START position.

8. The anomaly diagnosis system of Claim 2,  
wherein the pre-start state detecting means detects the pre-start state based on a door opening/closing switch signal as the given signal, wherein the door opening/closing switch signal indicates an operation state of opening or closing of a door of the vehicle.

9. The anomaly diagnosis system of Claim 8,  
wherein a state of a door-knob manipulation switch is detected by the vehicle state detecting means, and  
wherein, when the pre-start state is not detected based on the door opening/closing switch signal for a given period including given time at which a door knob is operated based on the state of the door-knob manipulation switch, the anomaly detecting means detects the anomaly of the pre-start state detecting means.

10. The anomaly diagnosis system of Claim 2,  
wherein the pre-start state detecting means detects the pre-start state based on a door-knob manipulation switch signal as the given signal, wherein the door-knob manipulation switch signal indicates an operation state of a door-knob of the vehicle.

11. The anomaly diagnosis system of Claim 10,  
wherein a state of a door opening/closing switch is  
detected by the vehicle state detecting means, and

wherein, when the pre-start state is not detected based  
on the door-knob switch signal for a given period including  
given time at which the door is operated based on the state of  
the door opening/closing switch, the anomaly detecting means  
detects the anomaly of the pre-start state detecting means.

12. The anomaly diagnosis system of Claim 1,  
wherein, when the anomaly of the pre-start state  
detecting means continues for more than a given period, the  
anomaly detecting means diagnoses the pre-start state detecting  
means with a final anomaly.

13. The anomaly diagnosis system of Claim 1,  
wherein the anomaly detecting means continuously  
increments a count while the anomaly of the pres-start state  
detecting means is being detected, and

wherein, when the count exceeds a given count, the  
anomaly detecting means diagnoses the pre-start state detecting  
means with a final anomaly.

14. The anomaly diagnosis system of Claim 1,  
wherein the warming-up means executes the warming-up by  
controlling an electric current flowing through a heater  
provided in at least one of five units, wherein:

a first unit of the five units is an air/fuel ratio sensor provided in an exhaust path;

a second unit of the five units is a suction pipe;

a third unit of the five units is a catalyst converter provided in the exhaust gas path for purifying harmful gas;

a fourth unit of the five units is a fuel injection valve provided for injecting fuel into the engine; and

a fifth unit of the five units is a canister provided for adsorbing vapor fuel vaporized from a fuel tank.